CHAPTER 6
MITIGATION

CHAPTER SUMMARY: This chapter outlines the proposed plan for avoiding, minimizing, and compensating for the potential environmental impacts of the proposed Runway Safety Area (RSA) improvement project at the Kodiak Airport.

"Mitigation" is the process used to avoid, minimize, and compensate for environmental impacts of an action. Steps in this process typically include methods to avoid an impact altogether if possible, minimize or reduce the magnitude of impact to the extent practicable, and compensate for unavoidable impacts.

6.1 Summary of the Preferred Alternatives

The Federal Aviation Administration (FAA) has identified preferred alternatives for improvements to RSA on two Kodiak Airport runways. The identified preferred alternatives are as follows:

- *Runway 07/25 - Alternative 2*. This alternative would improve the RSA on the primary, east-west runway by placing fill into marine waters east of Runway end 25. A 600-foot long RSA would be constructed that includes an Engineered Materials Arresting System (EMAS) bed measuring 340 feet long by 170 feet wide.
- *Runway 18/36 – Alternative 7.* This alternative would improve the RSA on both ends of the north-south Runway 18/36. At the north, Runway end 18, no additional disturbance would occur beyond the current airport boundary, but an EMAS bed measuring about 155 feet long by 170 feet wide would be installed on the existing pavement. At the south, Runway end 36, the runway would be shifted 240 feet further south, and a 360-foot RSA would be constructed, for a combined 600 linear feet of new fill beyond the existing runway threshold.

Chapter 4, *Environmental Consequences*, describes the environmental impacts that would result from implementing the proposed RSA improvement project. **Table 6-1** at the end of this chapter summarizes the predicted impacts for the preferred alternatives. The preferred alternatives have also been determined to have the least overall environmental impacts.

6.2 Requirements Relevant to Mitigation

National Environmental Policy Act (NEPA). NEPA requires that environmental impact statements (EISs) address "any adverse environmental effects which cannot be avoided should the proposal be implemented" (42 USC § 4332(2)(C)(ii)). The regulations of the Council on Environmental Quality implementing NEPA specifically require EISs to address mitigation (40 CFR §§ 1502.14(f), 1502.16(h)).

Wetlands and Other Waters of the U.S. Requirements for mitigation of impacts from filling wetlands and other waters of the U.S. are set forth in regulations issued by the U.S. Army Corps of Engineers (ACOE) and the U.S. Environmental Protection Agency (EPA) under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 (see 33 CFR parts 320 and 325; 40 CFR part 230). Under these regulations, the ACOE can only permit the least environmentally damaging practicable alternative. Additionally under these regulations, all appropriate and practicable steps must be taken to first avoid and then minimize adverse impacts to the aquatic ecosystem. If there are still unavoidable impacts, then compensatory mitigation may be required.

Compensatory mitigation is addressed in regulations issued by the ACOE and EPA on April 10, 2008 (73 Fed. Reg. 19594-705, codified at 33 CFR part 332 and 40 CFR part 230, subpart J). The compensatory mitigation regulations establish a mitigation hierarchy that generally encourages the use of mitigation banks[1] first because they "typically involve larger, more ecologically valuable parcels, and more rigorous scientific and technical analysis, planning and implementation than permittee-responsible mitigation"[2] (33 CFR § 332.3(b)(2)). The regulations also state that "in-lieu fee mitigation,[3] if available, is generally preferable to permittee-responsible mitigation" in areas serviced by an approved program that has sufficient credits (33 CFR § 332.3(b)(3)).

[1] Mitigation banking is the restoration, creation, enhancement, or preservation of a wetland, stream, or habitat conservation area which offsets expected adverse impacts to similar nearby ecosystem. The goal is to replace the exact function and value of the specific wetland habitats that would be adversely affected by a proposed project.

[2] Permittee-responsible mitigation is the restoration, establishment, enhancement or preservation of wetlands undertaken by a permittee in order to compensate for wetland impacts resulting from a specific project. The permittee performs the mitigation after the permit is issued and is ultimately responsible for implementation and success of the mitigation.

[3] An in-lieu fee payment is mitigation that occurs when a permittee provides funds to an in-lieu-fee sponsor (a public agency or non-profit organization) who has an approved compensatory mitigation instrument. Usually, the sponsor collects funds from multiple permittees in order to pool the financial resources necessary to build and maintain the mitigation site. The in-lieu fee sponsor is responsible for the success of the mitigation. Like banking, in-lieu fee mitigation is also "off-site," but unlike mitigation banking, it typically occurs after the permitted impacts.

In addition to the reasons stated above regarding mitigation banks, the regulations note that in-lieu fee (ILF) mitigation projects "devote[s] significant resources to identifying and addressing high-priority resource needs on a watershed scale…" (33 CFR § 332.3(b)(3). If approved mitigation bank or ILF fee program credits are not available, then permittee-responsible mitigation is the only option.

The compensatory mitigation regulations state that when compensatory mitigation is necessary to offset unavoidable impacts to aquatic resources, the amount of required compensatory mitigation must be, to the extent practicable, sufficient to replace lost aquatic resource functions. In cases where appropriate functional or condition assessment methods or other suitable metrics are available, these methods should be used where practicable to determine how much compensatory mitigation is required (33 CFR 332.3(f)).

Section 4(f). As explained in Section 4.14, *Department of Transportation Action Section 4(f)*, the FAA cannot approve the use of Section 4(f) resources, such as the Alaska Maritime National Wildlife Refuge (AMNWR), unless the project includes "all possible planning to minimize harm" resulting from the use (49 USC § 303(c)).[4]

Alaska Native Interest Lands Conservation Act (ANILCA). Section 1104(g) of ANILCA requires that the FAA consider and make findings with respect to "measures which should be instituted to avoid or minimize negative impacts." Under Section 1107(a), a right-of-way permit issued by the U.S. Coast Guard (USCG) and the U.S. Fish and Wildlife Service (USFWS) must include requirements to protect subsistence users and to avoid or minimize adverse environmental, social, or economic impacts.

Environmental Justice. Section 8.c of DOT Order 5610.2a, *Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, states that:

> *"…activities that will have a disproportionately high and adverse effect on minority populations or low-income populations will only be carried out if further mitigation measures or alternatives that would avoid or reduce the disproportionately high and adverse effect are not practicable. In determining whether a mitigation measure or an alternative is 'practicable,' the social, economic (including costs) and environmental effects of avoiding or mitigating the adverse effects will be taken into account."*

[4] Under regulations jointly issued by the Federal Highway Administration and the Federal Transit Administration (which are not binding on the FAA), this requirement may include "monetary compensation to enhance the remaining property [protected under Section 4(f)] or to mitigate the adverse impacts of the project in other ways" (23 CFR § 774.17).

Essential Fish Habitat (EFH). Under Section 305(b)(2) of the Magnusson-Stevens Fisheries Conservation Act (MSA), federal agencies are required to consult with the National Marine Fisheries Service (NMFS) on any action that may adversely affect EFH. Under Section 305(b)(4)(A) of the MSA, if the NMFS determines that an action would adversely affect any EFH, the NMFS must provide EFH conservation recommendations to the agency taking the action. In its comments on the Draft EIS, the NMFS provided the following conservation recommendation:

> *"NMFS recommends the FAA convene a meeting of interested resource agencies to develop mutually agreed upon mitigation to adequately compensate for the unavoidable impacts to the marine environment, including EFH. Further, we recommend that this mitigation package be included in the record of decision for the final Environmental Impact Statement."*

As explained in Section 6.3, *Development of the Mitigation Plan*, the FAA and Alaska Department of Transportation and Public Facilities (ADOT&PF) have coordinated with the appropriate agencies, including the NMFS, in developing the proposed mitigation plan. The final mitigation plan will be included in the FAA's record of decision.

6.3 Development of the Mitigation Plan

The preferred alternatives were selected because they would have the least environmental impact of all the practicable alternatives. The avoidance and minimization measures identified below in Section 6.4, *Mitigation Plan: Measures to Avoid and Minimize Environmental Impacts*, are the result of careful consideration by project planners and design staff, and represent input from numerous state and federal agencies with resource management responsibilities. Even with these measures, however, the preferred alternatives would still have adverse impacts, most notably to wetlands (0.1 ac), waters of the US (17.8 ac), the AMNWR (17.8 ac), and subsistence fisheries.

Development of compensatory mitigation for the Kodiak Airport project has involved a number of State and Federal agencies (see Appendix 13, Project Coordination) because of specific and overlapping regulatory authorities, as described above. Mitigation planning for loss of wetlands and other waters of the U.S. has been done to comply with the compensatory mitigation regulations of the ACOE and EPA since the ACOE has permit authority over the marine waters and wetlands that would be affected by the project. Additionally, the FAA has worked closely with the USFWS to ensure that the permit requirements of ANILCA would be met.

Agency coordination on mitigation has also included the NMFS with regard to impacts on the marine environment, including EFH. To address impacts to subsistence, FAA has engaged in consultation with Tribes in the area and the Alaska Department of Fish and Game (ADF&G), which manages subsistence resources on the Buskin River.

In developing the mitigation plan, the FAA has carefully considered all relevant comments, including specific mitigation suggestions, provided by agencies, Tribes, and the public during the comment period and public hearings on the Draft EIS. The FAA also reviewed other recent projects that have been permitted which had similar identified impacts in order to see mitigation measures that might be considered comparable to those anticipated for this project.

The following is a discussion of specific mitigation proposals the FAA received:

Culvert Replacement – It was suggested that culverts owned by either ADOT&PF or the federal government that currently do not provide fish passage should be replaced with structures that meet ADF&G fish passage design standards and are installed to provide unrestricted fish passage. ADF&G culvert surveys have identified six culverts on the Saltery Cove Road, four culverts on the Chiniak Highway and one culvert on the Anton Larson Bay Road that currently do not meet fish passage criteria. Kodiak Soil and Water Conservation District proposed the replacement of three culverts on the outlet stream of Lake Orbin in Bells Flats near Kodiak that do not meet fish passage standards. Although replacement of these culverts may restore access to spawning and rearing habitat, information on upstream habitat conditions and historic distribution and usage of these streams is not well documented. Moreover, during coordination with the FAA, the ACOE, the USFWS, the NMFS, and EPA agreed that acquisition and preservation of land through an ILF payment would be the preferred form of mitigation because it would provide long-term preservation of the functions and values of high quality habitat that are related to those resources that would be impacted (anadromous fish, migratory birds, and marine habitat). ADF&G has also agreed to the mitigation plan described in this chapter.

Land Acquisition – It was suggested that the FAA consider land acquisition adjacent to the Buskin River State Recreation Site, along Chiniak Bay, and/or on the Kodiak road system for the purposes of recreation and access to recreational/sport fisheries and subsistence resources. As explained in more detail in *Section 6.5 Mitigation Plan – Compensatory Mitigation*, the compensatory mitigation would include land acquisition. No specific property has been identified for purchase, but the property would be in the Kodiak area (defined as the Kodiak Archipelago Islands). The property would be acquired through an ILF payment to an approved ILF provider[5]. The ILF provider would use the payment to purchase and preserve habitat in the Kodiak area consistent with the mitigation goals contained in *Section 6.5 (Mitigation Plan – Compensatory Mitigation)*.

[5] At this time, only The Conservation Fund has an approved ILF instrument with the ACOE for the Kodiak area.

It would be the responsibility of the ILF provider to identify property that meets the mitigation goals and to find willing sellers. After acquisition, the property would be turned over to the USFWS for management as part of the refuge system. The property would then be open to the public for subsistence and recreational opportunities.

Landscape Enhancement Project – It was suggested that the FAA fund an enhancement project in the landscape area to provide increased recreational and subsistence opportunities for sockeye salmon production. The FAA reached out to several stakeholders, Tribes, and agencies in an attempt to identify an enhancement project that could be done within either the Buskin River watershed or nearby landscape (although landscape area was not defined by the commenter, the FAA looked for projects on the Buskin River and other rivers that were accessible by the road system). Specific projects identified are discussed in this section (i.e., culvert removal, adult salmon monitoring, land acquisition). The Buskin River is a healthy river system, with few opportunities to do meaningful fisheries enhancement. Additionally, there are no other salmon rivers in the vicinity where an enhancement project has been identified (other than culvert removal/replacement, as discussed above). As described above and in more detail in *Section 6.5 Mitigation Plan – Compensatory Mitigation,* the compensatory mitigation would include land acquisition through an ILF payment. While the ILF mitigation would not match some of the specific projects suggested, it would direct money back to the Kodiak area for the purchase of property that could be used for recreation and subsistence purposes.

Clam Bed/Funding for Salmon Enhancement – The Sun'aq Tribe of Kodiak requested that the FAA do one of the following: (1) establish an area similar to the size of the habitat being lost from the RSA project as a clam bed and provide on-going testing of paralytic shell fish poisoning in clams at the Kodiak Area at no cost to tribal members; or (2) provide $1 million to continue their salmon enhancement program. These mitigation options are currently the subject of ongoing government-to-government consultation between the Tribe and the FAA. However, as explained below, the mitigation plan does include funding for ADF&G's subsistence management program on the Buskin River.

Salmon Monitoring on the Buskin River – It was suggested that the FAA fund an adult salmon enumeration weir in the Buskin River or monitor smolt out-migration. The mitigation plan includes a payment of $200,000 to the ADF&G to fund their subsistence management program on the Buskin River. These funds would be used either to continue the current adult escapement monitoring or to develop a smolt enumeration study as suggested.

Mitigation Ratio – It was suggested that the FAA should consider a compensatory mitigation replacement ratio of 10:1 because the Buskin River is such an important resource and one of very few sockeye salmon producing streams in the Gulf of Alaska. As described in Section 6.5, *Mitigation Plan: Compensatory Mitigation*, the proposed mitigation ratio is 5.5:1 (i.e., 5.5 acres of mitigation for each acre of fill).

This ratio was determined by the FAA through coordination with USFWS, NMFS, EPA, and the ACOE. The ACOE has indicated that for this project the mitigation ratio of 5.5:1 is appropriate to compensate for fill into waters of the U.S., consistent with Alaska District Regulatory Guidance Letter (RGL) No. 09-01. Within the framework of this RGL, the ACOE Alaska District decides how: (1) adversely affected resources would be accounted for, in terms of resource function and value; and (2) credit would be assigned for specific types of mitigation. Factors used in making these determinations include, but are not limited to, habitat types affected; amount and locations of habitat; similarity of the habitat affected versus that proposed for establishment, restoration, enhancement or preservation; and mitigation timing.

Endowment Fund For Salmon Restoration – It was suggested that the FAA establish an endowment fund for salmon restoration in the Buskin River as alternative to the ILF payment. In order for an endowment fund to be successful, there would need to be an organization to operate and manage it. The FAA had conversations with the manager of an endowment fund in Alaska, other stakeholders, and the regulatory agencies about creation of an endowment fund for the Buskin River, but no organization or individual was identified to operate and manage such a fund. Additionally, as noted above, the relevant federal resource and regulatory agencies agree that an ILF payment is the preferred form of mitigation for this project.

Removal of Ghost Crab Pots in Women's Bay – After the close of the comment period on the DEIS, the FAA received a suggestion to remove ghost crab pots in Women's Bay. Recent studies indicate that ghost crab pots may contribute to or cause a decrease in the red king crab population in Women's bay. The FAA discussed the removal of ghost crab pots with the resource and regulatory agencies and the Sun'aq Tribe as a possible mitigation project. The NMFS told the FAA that their agency has a program for the removal of ghost crab pots. The FAA and the other agencies decided not to pursue this project because the RSA project would not have a significant impact on crab populations.

6.4 Mitigation Plan: Measures to Avoid and Minimize Environmental Impacts

This section is divided into two subsections. The first identifies conservation measures that would be used to reduce or minimize environmental impacts, and the second identifies Best Management Practices (BMPs) that would be used during construction.

Conservation Measures to Reduce or Minimize Environmental Impacts. The conservation measures described below would be implemented during construction to further reduce or minimize environmental impacts.

A number of these were developed during preparation of this Final EIS and in consultation with representatives from permitting and consulting agencies. Use of these measures would ensure potential construction impacts are minimized to the extent practicable.

- Wildlife observers would ensure Endangered Species Act (ESA) listed and candidate species are protected by adhering to the USFWS's *Observer Protocols for Fill Placement and Dredging* in the marine environment (USFWS 2012a). The observer protocol would be re-evaluated following each construction season. No changes to the observer protocol would be made without review and approval by USFWS or NMFS, as applicable.
- Project-related barge travel would avoid areas with high densities of endangered or threatened species to the extent practicable. Boat and barge operations would follow the USFWS's *Boat Operation Guidance to Avoid Disturbing Sea Otters* (USFWS 2012b) to minimize impacts to marine mammals. The wildlife observer would tell the captain if any new areas with ESA listed species were observed.
- Known sea lion rookeries and major haul outs would be avoided (as described in the Biological Assessment): the nearest major rookery to the Project Area is located on Marmot Island, approximately 38 miles northeast of the Airport. Although there are no rookeries within inner Chiniak Bay, there are two major haulouts that occur on the outer edge of Chiniak Bay. All major haulouts in the area of designated critical habitat are listed in the *Federal Register* (50 CFR Part 226). One of these is located on Long Island, approximately 11 miles east-northeast of the Airport, and one is on Cape Chiniak, approximately 15 miles southwest of the Airport (NOAA 1997).
- Material barges would not be grounded in high-density kelp stands, which can be important foraging habitat.
- The Cliff Point-Cliff Island-Zaimka Island area would be avoided by barges hauling fill gravel, underlayer stone, and/or armor stone to the site during the winter. This area is heavily used by Steller's Eider and Emperor Goose and may provide important habitat for individuals displaced from the Airport area during construction.
- Placement of fill and other in-water noise production would occur only after other noise-generating activities have ramped up and animals have had the opportunity to leave the area of their own accord.
- Fill placement would not occur when viewing conditions make it impossible to monitor the applicable distances. During periods of low visibility, work might continue if additional observers (stationed in boats, for example) could be added to provide complete visual coverage of the area.
- Should a sea otter or sea lion be observed within 300 meters of the project fill footprint prior to filling activities, Engineer notification and work initiation/ramp up/stop procedures would be followed as described above.

- Construction Timing:
    - In-water work construction would be excluded from April 1 to July 15 to avoid impacts to aquatic species. In-water work is defined as any work below the high tide line (Elevation 11.7 ft).
    - Wildlife observers would inform the Engineer if a listed or candidate bird is within 300 meters of fill placement activities. If so, the work would be delayed until the bird or birds have moved out of the area on their own. This distance is based on the behavioral threshold for Steller's eider.
- Pre-construction raptor nest surveys would take place within 0.5-mile of the Project Area. If Bald Eagle nests are found during that survey, the *National Bald Eagle Management Guidelines* would be followed. Specifically, any nests within 660 feet of activities that may cause nest disturbance (i.e., vegetation clearing and construction) may require that a take permit be issued for compliance with the Bald and Golden Eagle Protection Act. Additionally, nests from 660 feet to 0.5-mile from construction activities would be monitored by a qualified biologist. If resident birds appear disturbed by construction activities, construction activities would cease until young have fledged. If nests of other raptor species are found, USFWS would be contacted and construction activities would be monitored within the appropriate species-specific spatial buffer around the nest location.
- Construction lighting:
    - Lighting would be kept to the minimum level needed for safety and security.
    - Lights with motion or infrared sensors and switches would be used to keep lights off when not needed.
    - Lights would be hooded, down-shielded, and directed to minimize horizontal and skyward illumination.
    - High-intensity lighting, steady-burning, or bright lights such as sodium vapor or spotlights would be avoided.
    - Construction lights would be directed away from the runway and other aircraft operation areas and might need to be shielded, if construction took place while the Airport was open to air traffic.
    - Construction lighting would be deployed and directed in such a way as to minimize light and glare for residential areas with clear sightlines to the Airport.
- Steady lights would not be used to make cranes or other overhead structures more visible. Lights would be flashing red. Only strobe, strobe-like, or blinking incandescent lights would be used for this purpose
- Crane booms would be left unlit or be lit only with acceptable lighting, and would be lowered as close to ground level as feasible when not in use. The wildlife observer would confirm that any cranes used in construction were lowered when not in use and were not lighted, or if remaining up at night, were lit only with strobe lights.

- Caution would be required in areas of known hazardous materials contamination (such as Area 2 adjacent to Runway 18/36, or the former Snow Removal Equipment Building (just west of Runway end 18) if they were used for staging construction equipment and materials, or for construction haul routes. No excavation would take place in or adjacent to these areas. The Engineer would consider the use of contaminant screening devices, such as air/vapor monitors, if work were conducted in areas of known or suspected contamination.
- All work would be conducted in accordance with applicable permit stipulations (i.e., Corps 404 Permit, USFWS ANILCA right-of-way).
- All on-site construction activities would be conducted in accordance with FAA Advisory Circular (AC) 150/5370-10F, *Standards for Specifying Construction of Airports* and FAA AC 150/5320-5C, *Surface Drainage Design*.

Construction Best Management Practices. During construction, ADOT&PF's *Specifications for Airport Construction* (Advisory Circular 150/537010F, Standards for Specifying Construction of Airports, as modified and approved by the Federal Aviation Administration for Airport Improvement Program contracts in Alaska) would be followed. BMPs are activities relatively common in construction that can help to prevent pollution, minimize environmental harm, and assure that appropriate response action is taken if unacceptable environmental impacts occur, such as during a fuel spill. A complete list of BMPs would be created after all permits were received and the design completed. The following is a list of BMPs that have been identified thus far for the project. The complete list would be included in the design documents and project special provisions of the contract.

- ADOT&PF general contract provision 70-07 for the treatment of unanticipated cultural (historic, archaeological, etc.) discoveries during construction would apply. These protocols include measures for stopping construction if discoveries are made; having qualified archaeologists or other appropriate professionals examine the discovery; and consultation by the FAA with the State Historic Preservation Officer (SHPO), the ADOT&PF, federally recognized tribes, and other parties as relevant to the specific nature of the discovery [FAA Order 1050.1E, App. A, sec. 11.5b(3)].
- Construction would be phased, limiting the added barge traffic in the area during the placement of fill materials.
- Construction barges would be scheduled to minimize potential impacts on the USCG and other vessels in the area.
- Barges used for construction would follow standard BMPs for vessels to minimize the potential for oil or fuel spills (such as having an oil spill emergency plan). The only oil or fuel associated with barging of construction materials would be the fuel tanks used to operate the equipment to move the materials.

- Barges would adhere to standard protocols for ballast water exchange and hull inspection to minimize the risk of invasive species introductions.
- Fill areas in marine waters would be constructed during low tide periods of the day when feasible.
- Material sources would follow ADOT&PF's General Contractor Provision 60-02. Fill materials would be obtained from permitted sources (along road system, if possible) and would be clean (i.e., contain minimal fine particles such as silt and clay) to minimize sediment releases and turbidity outside of the fill zone.
- A construction stormwater pollution prevention plan (SWPPP) and a Spill Prevention, Control, and Countermeasure Plan (SPCC) would be prepared, as required under ADOT&PF's Technical Provisions 157-2.1 and 157-2.3, to ensure potential pollutants are controlled and contained on site.
- Silt curtains would be the primary method of containment at both runway ends. If silt curtains were determined to not adequately contain fine sediments during fill activities, other techniques would be used to minimize sedimentation dispersion in the marine environment, such as using alternative fill placement methods or washing the fill. These alternative methods would be developed for and documented in the SWPPP (ADOT&PF's Technical Provisions 157-2.1c). If methods included in the SWPPP were not successful, the SWPPP would be modified to identify alternative methods for sediment containment, and the USFWS would be provided with an opportunity to review the revisions prior to implementation.
- Ground disturbance areas including runway ends would require appropriate erosion and sediment control during construction (ADOT&PF's Technical Provisions 157-231e). Design drawings would include an erosion and sediment control plan with the bid package that includes erosion control techniques such as sediment fences, straw bales, straw wattles, diversion terracing, inlet protection, and stabilized construction entrances.
- As directed under ADOT&PF's General Contract Provision 70-11e(4), fueling, storage and maintenance of vehicles would be performed offsite or at designated areas. These areas would be at least 100 feet from any wetlands or waters of the U.S., with the exception of low-mobility equipment.
- Rock armor would be placed along fill edges as soon as feasible.

- The contractor would follow ADOT&PF's *Specifications for Airport Construction* (ADOT&PF 2013) General Contract Provision 70-11d and Technical Standards 157-2.2 for excavation and ground disturbance work in areas of known and suspected hazardous materials. The former military and ongoing aviation activities that have occurred in the project area raise the possibility that undocumented areas of contamination may be encountered during excavation activities. If contaminants were encountered or suspected, contractors would be required to stop work and, if possible, verify the type and extent of contamination. Appropriate authorities would be notified of the presence of contamination.
- As defined under ADOT&PF's Technical Provisions 151, construction activities would be confined to the minimum area necessary to complete the project in order to reduce soil disturbance areas and vegetation removal.
- Soil, gravel, and debris along haul routes between the Airport and the rock fill sources would be minimized. Haul roads would be restored to their original conditions, as required under General Contract Provision 70-11g.
- Dust prevention measures would be used along construction roads and stockpiles.
- Surface routes used for transport of materials to the Airport or the movement of construction equipment would be selected to minimize noise and traffic conflicts in residential areas and other areas with sensitive receptors.
- To control the spread of weeds and invasive plant materials, the following measures would be conducted:
    - Weed-free native seed would be used in areas where re-vegetation is required;
    - Surface disturbance in areas where native vegetation is to be maintained would be minimized;
    - Fill materials would be free of invasive plant species;
    - Weed surveys and control would be conducted before surface disturbing activities began in order to minimize the spread of weed seeds into non-weedy areas; and
    - Reclamation activities would follow ground disturbing activities to minimize conditions that facilitate weed establishment.

6.5
Mitigation Plan: Compensatory Mitigation

The FAA's plan for compensatory mitigation has the following goals and objectives:

- Preserving the functions and values of high quality habitats in the Kodiak area that are related to anadromous fisheries, migratory birds, and marine resources and habitats;
- Providing access to and preservation of areas with subsistence resources that are located within the Kodiak area; and
- Managing the sustainability of subsistence resources in the Buskin River by providing funding to the ADF&G Subsistence Management Program.

These goals and objectives would be achieved by making a $2 million ILF payment to an approved ILF provider[6] for the purpose of purchasing high-value intertidal, estuarine, and/or coastal habitat in the Kodiak area (defined as the Kodiak Archipelago Islands) for preservation.

The ILF payment would be based on a ratio of 5.5:1 (i.e., 5.5 acres of mitigation for each acre of fill). This mitigation ratio was determined by the FAA through coordination with the USFWS, the NMFS, EPA, and the ACOE. In working with the regulatory and resource agencies, the following effects that may be caused by the project were taken into consideration in developing the mitigation ratio:

- Change in the freshwater plume from the Buskin River
- Loss of fish habitat
- Increase in stormwater runoff
- Effects on aquatic assemblages
- Changes to geomorphology of the Buskin River mouth
- Loss of threatened and endangered species habitat
- Loss of Essential Fish Habitat
- Effects to bears from decreased fish runs
- Loss of migratory bird habitat

[6] At this time, only The Conservation Fund has an approved ILF Instrument with the ACOE in the Kodiak area.

The FAA has received written concurrence from the USFWS, the NMFS, and ADF&G on the proposed mitigation plan. A functional assessment using a methodology approved by the ACOE was performed for the wetlands and other waters of the U.S. affected by this project and is included in the Kodiak Airport EIS Wetland Delineation Report (included in Appendix 2, Wetlands, and summarized in Section 4.3, Wetlands And Other Waters of the U.S.). The ACOE has indicated that the proposed mitigation ratio of 5.5:1 would be appropriate to compensate for the fill into waters of the U.S., and would be consistent with Alaska District RGL No. 09-01.

The ILF payment would be consistent with the preference hierarchy in the compensatory mitigation regulations issued by the ACOE and EPA (see Section 6.2, *Requirements Relevant to Mitigation*). The project area is not within the service area of a wetland mitigation bank, but is within the service area of an approved ILF program operated by The Conservation Fund (TCF). During coordination with the FAA, the relevant federal agencies (i.e., the ACOE, the USFWS, the NMFS, and EPA) agreed that acquisition and preservation of land through an ILF payment would be the preferred form of mitigation because it would provide long-term preservation of the functions and values of high quality habitat that are related to those resources that would be impacted (anadromous fish, migratory birds, and marine habitat). ADF&G has also agreed to the mitigation plan described in this chapter. The FAA has been coordinating with TCF to ensure that the property(ies) acquired with the ILF payment would meet the mitigation goals for the project.

In addition to the ILF payment, the mitigation plan includes a payment of $200,000 to the ADF&G to fund their existing subsistence management program on the Buskin River. This program aids in the management of sustainability of the salmon runs and helps manage the river for all subsistence users. During the Draft EIS process, the FAA received several comments suggesting either adult or smolt out-migration be monitored to evaluate short-term and long-term effects to the river's salmon runs. ADF&G would use the $200,000 either to continue the current adult escapement monitoring to allow in-season management of the subsistence resource, or to develop a smolt enumeration study.

TABLE 6-1
ENVIRONMENTAL IMPACT SUMMARY
IMPROVEMENTS TO THE RUNWAY SAFETY AREA – PREFERRED ALTERNATIVES

Impact Category	Runway 07/25 Alt. 2	Runway 18/36 Alt. 7	Combined Impacts
Coastal Resources and Navigation	Coastal Zone Management Act (CZMA) does not apply; Resource specific impacts are detailed in other resource sections.	CZMA does not apply; Resource specific impacts are detailed in other resource sections.	CZMA does not apply; Resource specific impacts are detailed in other resource sections.
Water Quality	Increase in impervious surface/stormwater runoff; no significant impacts expected; Moderate changes to sediment transport; moderate decrease in ability of Buskin River mouth to migrate. No significant impacts expected.	Increase in impervious surface/stormwater runoff. No significant impacts expected.	Increase in impervious surface/stormwater runoff; No significant impacts expected; moderate changes to sediment transport; moderate decrease in ability of Buskin River mouth to migrate. No significant impacts expected.
Wetlands and other waters of the U.S.	No fill into wetlands; 9.13 acres fill into marine waters; based on the magnitude of tidal waters loss, adverse indirect effect to maintenance of natural systems supporting fish habitat would result in significant impacts to waters of the U.S.	8.68 acres fill into marine waters; 0.11 fill into wetlands; based on the magnitude of tidal waters loss, adverse indirect effect to maintenance of natural systems supporting fish habitat would result in significant impacts to waters of the U.S.	17.81 acres fill into marine waters; 0.11 fill into wetlands; based on the magnitude of tidal waters loss, adverse indirect effect to maintenance of natural systems supporting fish habitat would result in significant impacts to waters of the U.S.
Floodplains	No fill into Buskin River floodplain	No fill into Buskin River floodplain	No fill into Buskin River floodplain
Fish and Invertebrates	Major loss of juvenile salmonid rearing and foraging habitat; major loss of salmonid prey species habitat; major changes to freshwater plume; moderate changes to sediment transport; moderate decrease in ability of Buskin River mouth to migrate; major potential localized changes to aquatic assemblages. Significant impacts to Fisheries Resources.	Moderate loss of juvenile salmonid rearing and foraging habitat; moderate loss of salmonid prey species habitat; negligible changes to freshwater plume; negligible changes to sediment transport; negligible decreased ability of Buskin River mouth to migrate; moderate potential localized changes to aquatic assemblages. No significant impacts to Fisheries Resources.	Major loss of juvenile salmonid rearing and foraging habitat; major loss of salmonid prey species habitat; major changes to freshwater plume; moderate changes to sediment transport; moderate decrease in ability of Buskin River mouth to migrate; major potential localized changes to aquatic assemblages. Significant impacts to Fisheries Resources.

TABLE 6-1, CONTINUED
SUMMARY OF ENVIRONMENTAL IMPACTS, PREFERRED ALTERNATIVES

Impact Category	Runway 07/25 Alt. 2	Runway 18/36 Alt. 7	Combined Impacts
Waterbirds	Loss of small percentage of habitat in the Project Area for Steller's Eider (3.4%), Emperor Goose (3.4%), Pelagic Cormorant (2.8%), Black Oystercatcher (3.0%), Marbled Murrelet (2.3%). No significant impacts	Loss of small percentage of habitat in the Project Area for Steller's Eider (2.9%), Emperor Goose (2.9%), Pelagic Cormorant (2.0%), Black Oystercatcher (2.2%), Marbled Murrelet (2.0%). No significant impacts	Loss of small percentage of habitat in the Project Area for Steller's Eider (6.3%), Emperor Goose (6.3%), Pelagic Cormorant (4.8%), Black Oystercatcher (5.2%), Marbled Murrelet (4.3%). No significant impacts
Marine Mammals	Loss of small amount of marine mammal habitat (2.9%); N. Sea Otter Critical Habitat (3.5%) and Steller Sea Lion Critical Habitat (3.0%); No significant impacts due to small amount of area lost compared to total habitat, no significant impact on function or conservation role of affected critical habitat.	Loss of small amount of marine mammal habitat (2.8%); N. Sea Otter Critical Habitat (2.7%) and Steller Sea Lion Critical Habitat (2.4%); No significant impacts due to small amount of area lost compared to total habitat, no significant impact on function or conservation role of affected critical habitat.	Loss of small amount of marine mammal habitat (5.7%); N. Sea Otter Critical Habitat (6.2%) and Steller Sea Lion Critical Habitat (5.4%); No significant impacts due to small amount of area lost compared to total habitat, no significant impact on function or conservation role of affected critical habitat.
Terrestrial Wildlife and Vegetation	1.2% of the total cover impacted in the Project Area; No federally listed threatened, endangered species in the terrestrial project area; Indirect effects on Kodiak brown bear from reduced salmon runs. No significant impact on either special status species or non-listed species.	1.0% of the total cover impacted in the project area; No federally listed threatened, endangered species in the terrestrial Project Area; Indirect effects on Kodiak brown bear from reduced salmon runs. No significant impact on either special status species or non-listed species.	2.2% of total cover impacted; No federally listed threatened, endangered species in the terrestrial Project Area; Indirect effects on Kodiak brown bear from reduced salmon runs. No significant impact on either special status species or non-listed species.

TABLE 6-1, CONTINUED
SUMMARY OF ENVIRONMENTAL IMPACTS, PREFERRED ALTERNATIVES

Impact Category	Runway 07/25 Alt. 2	Runway 18/36 Alt. 7	Combined Impacts
Historical, Architectural, Archaeological, and Cultural Resources	No adverse effect on historic properties. There may be long-term, significant adverse effect on customary and traditional practices of the Sun'aq Tribe of Kodiak, Tangirnaq Native Village, and the Native Village of Afognak because marine and river resources that are traditionally harvested and subject to sharing, consumption, or other actions as part of cultural custom may be significantly impacted. Potential impacts would be greater under Alternative 3 than Alternative 2.	No adverse effect on historic properties. Short-term minor adverse effect on cultural customary and traditional subsistence practices and related cultural practices and identity of the Sun'aq Tribe of Kodiak, Tangirnaq Native Village, and the Native Village of Afognak.	No adverse effect on historic properties. There may be long-term, significant adverse effect on customary and traditional practices of the Sun'aq Tribe of Kodiak, Tangirnaq Native Village, and the Native Village of Afognak, because marine and river resources that are traditionally harvested and subject to sharing, consumption, or other actions as part of cultural custom may be significantly impacted.

TABLE 6-1, CONTINUED
SUMMARY OF ENVIRONMENTAL IMPACTS, PREFERRED ALTERNATIVES

Impact Category	Runway 07/25 Alt. 2	Runway 18/36 Alt. 7	Combined Impacts
Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks	Socioeconomic impact on Kodiak residents who use subsistence resources (over 99% of the population). Because almost all residents in Kodiak tend to use subsistence resources, the impact would affect nearly the entire population; therefore, there would not be any disproportionate impact to just one section of minority or low- income population relative to the use of subsistence resources. However, because subsistence resources affect take home resources for food, the reduction in subsistence resources per capita would likely be felt to a larger extent by low income populations because higher income populations could generally make up the difference in subsistence use through other resources (salary, etc.). Additionally, because subsistence practices are tied to the cultural identity of the Sun'aq Tribe of Kodiak, Tangirnaq Native Village, and the Native Village of Afognak, there could be a disproportionately high and adverse effect on customary and traditional practices and the cultural identity of those minority populations. Potential economic benefit from construction; No effects on children's health or safety. Potential impacts would less than under Alternative 3 due to greater impact on important habitat near the Buskin River for Alternative 3.	Potential impacts to subsistence resources would be avoided because it avoids fill into the Buskin River area, therefore avoiding the potentially significant subsistence impacts; Potential economic benefit from construction; No effects on children's health or safety.	Socioeconomic impact on Kodiak residents who use subsistence resources (over 99% of the population). Because almost all residents in Kodiak tend to use subsistence resources, the impact would affect nearly the entire population; therefore, there would not be any disproportionate impact to just one section of minority or low- income population relative to the use of subsistence resources. However, because subsistence resources affect take home resources for food, the reduction in subsistence resources per capita would likely be felt to a larger extent by low income populations because higher income populations could generally make up the difference in subsistence use through other resources (salary, etc.). Additionally, because subsistence practices are tied to the cultural identity of the Sun'aq Tribe of Kodiak, Tangirnaq Native Village, and the Native Village of Afognak, there could be a disproportionately high and adverse effect on customary and traditional practices and the cultural identity of those minority populations. Potential economic benefit from construction; No effects on children's health or safety.

TABLE 6-1, CONTINUED
SUMMARY OF ENVIRONMENTAL IMPACTS, PREFERRED ALTERNATIVES

Impact Category	Runway 07/25 Alt. 2	Runway 18/36 Alt. 7	Combined Impacts
Subsistence	Some loss of immobile subsistence species and temporary displacement of mobile subsistence species during fill placement. Subsistence users would be displaced to other nearby marine areas to gather resources, which would likely increase competition for subsistence resources in those locations. Potential significant long-term impacts to abundance and availability of subsistence resources. Effects on abundance and availability in the affected important freshwater plume habitat because of potential for increased mortality of salmon smolts and, subsequently, returning adult salmonids. Effects would be less than Alternative 3 due to smaller size of fill footprint.	No significant impacts due to lower use of area south of Runway end 36 by subsistence users and lower relative importance of habitats in this area relative to subsistence species. Placement of fill at Runway end 36 would displace a known herring congregation area.	Same as described for Runway 07/25 Alt 2 with added impact on lower quality resources near Runway end 36; Significant impact; 18.1 acres impacted of the Subsistence Use Area (5.7% in Subsistence Use Area) from fill on marine habitats.
Noise	No change in number of operations, location of operations or the resulting noise contour; no noise sensitive uses in the 65 DNL (Day-Night Average Sound Level) contour; no effect on Buskin River State Recreation Sites, Alaska Maritime National Wildlife Refuge, or Finny Beach. No significant impacts.	Slight shift in runway threshold; no noise sensitive uses in the 65 DNL contour. No significant impacts.	Since there is no change with Runway 07/25 Alt.2, there would be no combined impact from Runway 07/25 and Runway 18/36 Alternatives.
Compatible Land Use	No significant noise impacts; required lease amendment.	No significant noise impacts; required lease amendment; required modification to avigation easements.	No significant noise impacts; required lease amendment; required modification to avigation easements.

TABLE 6-1, CONTINUED
SUMMARY OF ENVIRONMENTAL IMPACTS, PREFERRED ALTERNATIVES

Impact Category	Runway 07/25 Alt. 2	Runway 18/36 Alt. 7	Combined Impacts
DOT Act Section 4(f)	Buskin River State Recreation Site: No physical or constructive use. Alaska Maritime National Wildlife Refuge: Physical Use of 9.1 acres. National Historic Landmarks: De minimis impact; no adverse effect on historic properties.	Buskin River State Recreation Site: No use. Alaska Maritime National Wildlife Refuge: Physical Use of 8.7 acres. National Historic Landmark: De minimis impact; no adverse effect on historic properties.	Buskin River State Recreation Site: Constructive use may occur relative to fishing due to potential reduction in abundance and availability of salmonids. Alaska Maritime National Wildlife Refuge: Physical Use of 17.8 acres. National Historic Landmark: De minimis impact; no adverse effect on historic properties.
Light Emissions and Visual Impacts	Moderate short and long-term visual impacts. No significant lighting impacts.	Major short-term visual impacts; minor long-term visual impacts. No significant lighting impacts.	Major short-term impacts; long-term impacts would be minor to moderate. No significant lighting impacts.
Hazardous Materials, Pollution Prevention, and Solid Waste	No disturbance of known contaminated sites that have not been cleaned up; no substantial waste generated. No significant impacts.	No disturbance of known contaminated sites that have not been cleaned up; no substantial waste generated. No significant impacts.	No disturbance of known contaminated sites that have not been cleaned up; no substantial waste generated. No significant impacts.
Farmland	No prime or unique farmland impacted.	No prime or unique farmland impacted.	No prime or unique farmland impacted.
Natural Resources and Energy Supply	256,932 cubic yards (cy) of fill; Small increase in fuel and electric use; No significant impacts.	462,081 cy of fill; Small increase in fuel and electric use; No significant impacts.	719,013 cy of fill; Small increase in fuel and electric use; No significant impacts.

TABLE 6-1, CONTINUED
SUMMARY OF ENVIRONMENTAL IMPACTS, PREFERRED ALTERNATIVES

Impact Category	Runway 07/25 Alt. 2	Runway 18/36 Alt. 7	Combined Impacts
Air Quality	No change in number of aircraft operations; Small short-term increases in emissions from construction; No significant impacts.	No change in number of aircraft operations; Small short-term increases in emissions from construction; No significant impacts.	No change in number of aircraft operations; Small short-term increases in emissions from construction; No significant impacts.
Climate	No change in number of aircraft operations; Small short-term increases in emissions from construction; No significant impacts.	No change in number of aircraft operations; Small short-term increases in emissions from construction; No significant impacts.	No change in number of aircraft operations; Small short-term increases in emissions from construction; No significant impacts.
Wild and Scenic Rivers	Project Area does not include any designated wild and scenic rivers, study rivers, or otherwise eligible rivers.	Project Area does not include any designated wild and scenic rivers, study rivers, or otherwise eligible rivers.	Project Area does not include any designated wild and scenic rivers, study rivers, or otherwise eligible rivers.
Construction Impacts	256,932 cy of fill; Air, water, noise, and surface transportation impacts from construction that would be temporary and not significant due to use of BMPs and avoidance/minimization measures.	462,081 cy of fill; Air, water, noise, and surface transportation impacts from construction that would be temporary and not significant due to use of BMPs and avoidance/minimization measures.	719,013 cy of fill; Air, water, noise, and surface transportation impacts from construction that would be temporary and not significant due to use of BMPs and avoidance/minimization measures.
Secondary (Induced) Impacts	No shifts in patterns of population movement or growth; No permanent changes in economic activity; Primary effects result from induced effects from significant impacts to fisheries, associated subsistence and cultural practices.	No shifts in patterns of population movement or growth; No permanent changes in economic activity; No significant impact on fisheries or resulting induced impacts due to avoidance of Buskin River.	No shifts in patterns of population movement or growth; No permanent changes in economic activity; Primary effects result from induced effects from significant impacts to fisheries, associated subsistence and cultural practices.